



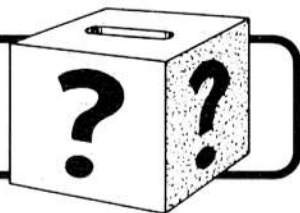
NUCLEAR DIVISION NEWS

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

Vol. 5 — No. 14

July 18, 1974

QUESTION BOX



If you have questions on company policies, benefits, etc. or any other problems with which we might help, just let us know. Drop your inquiry to the Editor, Nuclear Division News. (Or telephone it to your plant news representative). You may or may not sign your name. It will not be used in the paper if you so desire.

Questions are referred to the proper authorities for accurate answers. Each query is given serious consideration for publication.

Answers may be given to employees personally if they so desire.

QUESTION: There appears to be considerable abuse of the current personal leave "policy," part of which may stem from a lack of administrative consistency in its interpretation. The major problem revolves around the meaning of "extenuating personal circumstances," particularly now that vacations can be segmented. Why should one division allow an employee 4 days "P" during a school year to deliver and pick up a student at school, whereas another division will not? Why should one division allow "P" to do repairs around a house, whereas another does not? (Often, the employees involved are carrying forward 4-6 weeks of vacations, anyway!).

A second area of abuse concerns the policy, instituted in 1970, that exempt employees' "absences for less than 4 hours are not reported." Ten absences of 3 hours and 55 minutes total nearly 5 days, but need not be reported.

Could you comment on the above?

ANSWER: Employees often ask for a strict interpretation of the term "extenuating personal circumstances" as it relates to being excused from work for personal reasons. Personal circumstances encompass an endless variety of individual situations. To attempt to specifically define all personal circumstances which would justify the granting of personal time off from work would be virtually impossible. Rather, the Company has chosen to leave to the discretionary judgment of an employee's supervisor which extenuating personal circumstances warrant personal absence and which do not. A basic criteria supervisors are urged to follow in making a decision is whether the employee's request for personal leave

results from a need as opposed to a convenience. Personal leave is appropriate where a need exists, while the use of fragmented vacation would be more appropriate where the absence is for a personal convenience.

In the two examples you noted, concerning personal time off "to deliver and pick up a student at school" and to "do repairs around the house," it appears on the surface that both type incidents would be an abuse of the intent of the personal leave policy.

In regard to your reference to the absence reporting procedure for exempt employees, you are correct that personal absences of less than four hours duration need not be reported. However, such personal leave is granted under the same criteria that applies to longer absences.

QUESTION: What can be done about private businesses wasting electrical power when foolish rules are imposed on us under the guise of conservation?

ANSWER: The energy conservation measures which have been adopted at U.S. Government-owned facilities have resulted in a significant reduction in energy consumption. The AEC installations achieved a 10.3 percent decrease in the second quarter of FY 1974 versus the same period in FY 1973. The overall reduction by all Federal agencies for this period was 26 percent.

Union Carbide also has a very extensive energy conservation effort in its privately-owned facilities. The energy required for each pound of chemicals and plastics sold has been reduced by 20

(Continued on page 8)

MIUS studies would provide total on-site utility package

By Robert Wesley

Oak Ridge National Laboratory is participating in a multiagency program, directed by the Development of Housing and Urban Development (HUD), aimed at developing a Modular Integrated Utility System (MIUS), which would provide communities of limited size with the utility services of energy, water and waste disposal from an on-site, combined package plant.

The program ultimately is expected to include one or more demonstration plants which would utilize commercial components and new technologies developed in connection with the program.

Typical user

A typical user of a MIUS system could be an apartment complex housing approximately 700 to 1,000 families and located on the outskirts of a large city. The complex would have facilities to produce its own electric power; to provide heating and cooling; to provide water for drinking, bathing and lawn sprinkling; and to provide for liquid and solid waste treatment and disposal.

Advantages of such a system include the following:

(1) energy conservation by using heat rejected from a prime mover - such as engine generators - for heating buildings, processing potable water, heating water, processing liquid wastes and operating absorption-type refrigeration units to cool buildings;

(2) energy conservation by using heat from solid waste incineration to supplement heat from the prime movers;

(3) save capital costs by not constructing long electrical transmission lines and interceptor sewers to municipal utility systems;

(4) reduce expensive field construction by standardizing and package-building in factories;

(5) plants would not be built until needed for a specific site, as opposed to the present practice of utilities to build in anticipation of future requirements;

(6) provide for a more equitable distribution of environmental impact by on-site waste processing and power generation;

(7) provide services for building projects where they are not available from municipal systems;

(8) provide transportable utility service packages for disaster relief.

ORNL contributions to the study include technology evaluations, system analysis of MIUS models, comparisons of MIUS environmental effects and costs with those for conventional facilities, analysis of the potential market and investigation of the legal and social aspects for applying the system. Arthur J. Miller is the ORNL program manager for the ORNL activities in support of MIUS and Virgil Haynes is coordinator. Both are in the Energy Division.

(Continued on Page 2)

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HEAD UP PROGRAM — Arthur J. Miller, left, and Virgil Haynes are manager and coordinator, respectively, for the Modular Integrated Utility System activities performed at the Oak Ridge National Laboratory for the Department of Housing and Urban Development.

NUCLEAR DIVISION SAFETY SCOREBOARD

Time worked without a lost-time accident through July 11:

Paducah	147 Days	859,000 Man-Hours
ORGD	127 Days	2,333,148 Man-Hours
ORNL	65 Days	1,086,000 Man-Hours
Y-12 Plant	394 Days	12,367,000 Man-Hours

MIUS studies would provide on-site utility package

(Continued from page 1)

Miller explained, "The basic idea involved here is that less energy is wasted if the same source supplies both electrical and heat energy. It appears that the MIUS idea would be of most value in a densely populated housing complex. High-rise or garden-type apartments and associated commercial facilities would be the most likely users. The packaged system also might possibly reach out to single-family dwellings on the perimeter and supply them with all-electric systems. There are a number of technological and institutional questions involved in the study."

In addition to the U. S. Atomic Energy Commission (via ORNL), the participating agencies include the Department of Commerce (via the National Bureau of Standards), Environmental Protection Agency, National Aeronautics and Space Administration, Department of Defense, Department of Interior and Department of Health, Education and Welfare.

Total system

ORNL was involved in an analysis for HUD, of waste heat use from large central power plants, several years before the MIUS program began in 1971. As early as 1967, ORNL personnel had explored the use of waste warm water and extracted heat from large fossil fuel or nuclear power plants to provide heat energy to big cities. The conclusion drawn from those studies was that it was feasible to use the "waste heat," but that a city would have to be designed in advance to accept such services.

Miller explained "The idea of a packaged, total utility system appeared attractive, so we began to study the concept to determine the housing patterns that could be served and the performance one could expect in terms of conservation of fuel resources, environmental impact and cost. The everyday problems of developer financing and profit and consumer attitude also received attention. We discounted nuclear fuel as the power source because its greatest advantage is found in large remotely-sited stations. We began to think in terms of synthetic pipeline gas from coal conversion, but now we are turning our attention to designing an on-site coal-burner system which would be economical and permit only environmentally acceptable emissions to the air."

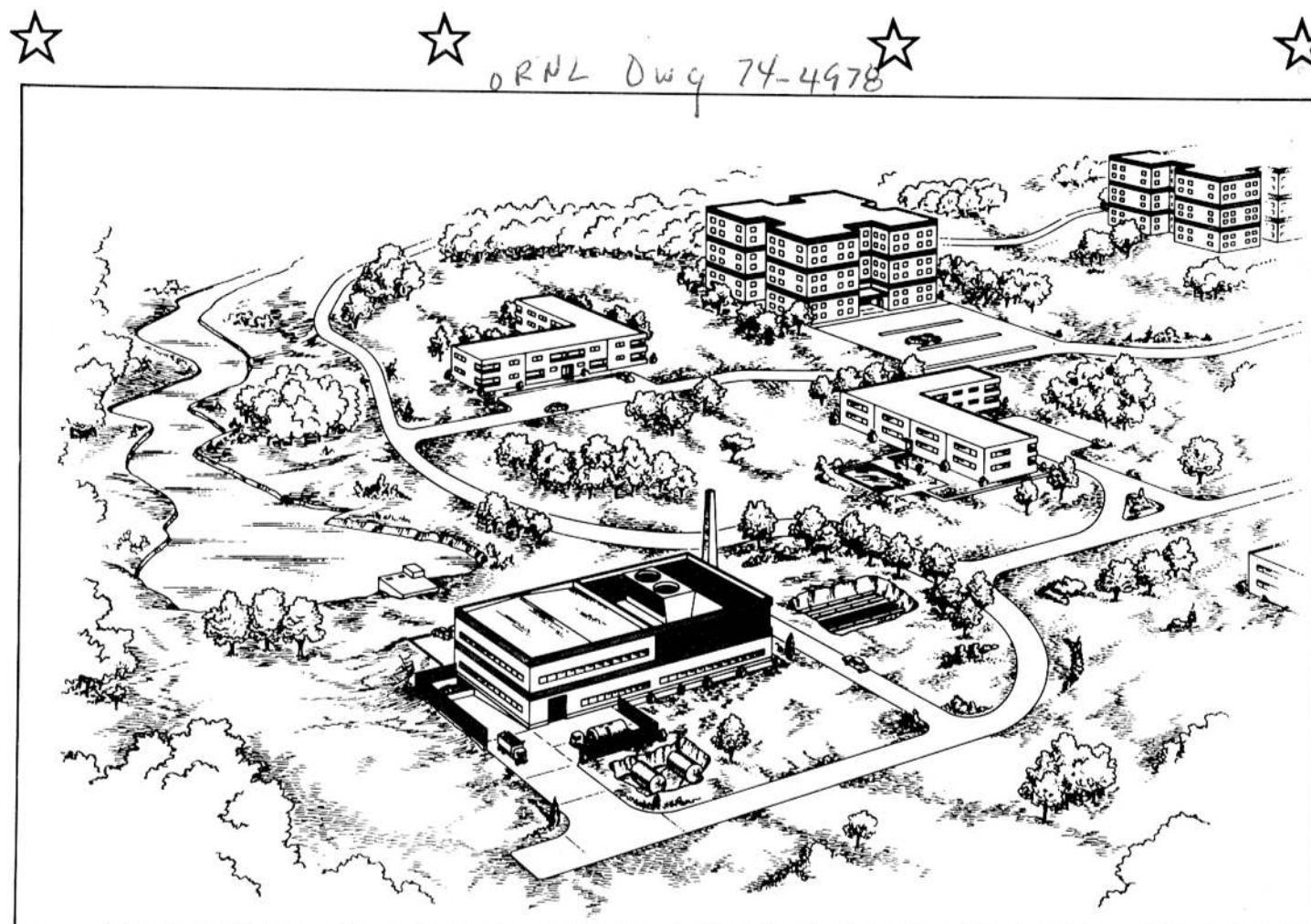
Monitoring system

Miller believes that the completion of the first demonstration MIUS plant will occur in 1976, and that once such a plant is built and operated, large utility companies will show some interest in the idea.

"If existing utility companies took over the MIUS idea, they could make it part of an optimized, more economical grid, part conventional and part MIUS," Miller said. "They could operate a large number of MIUS plants and monitor them remotely just as some utility companies monitor total energy plants today. The Northern Illinois Gas Company, for instance, operates remotely some 50 energy installations in the Chicago suburbs. When one of the stations has a malfunction, they activate standby equipment and send out a mobile diesel generator to take up the standby task while they make repairs and replacements."

'Find acceptance'

Miller admitted that utility firms have not yet demonstrated a high degree of



POTENTIAL USER OF MIUS — An apartment complex housing approximately 700 to 1,000 families, located some distance from existing electrical and water utilities, might be a potential user of a Modular Integrated Utility System which would provide utility services and waste disposal in an on-site, packaged operation.

enthusiasm for the MIUS concept. "Most utility firms are accustomed to thinking in terms of large central station power plants with long transmission lines linking them to all their customers, or of a network of sewers feeding a few large sewage treatment plants. The advantages of bringing all the utility systems together into one package at the customers' site will have to be demonstrated before we can expect many companies to become interested. Part of our task will be to seek out opposition to the idea and find acceptance, because the end result of such a system will be a considerable saving in energy as well as in construction costs for power transmission lines and interceptor sewer systems."

In addition to Miller and Haynes, other ORNL personnel involved and their area of study include: Arthur Fraas, coal-burning systems; William Boegly, William Griffith and Alicia Compere, sanitary-type facilities; Garland Samuels and John Meador, energy utilities; William Mixon and Charles Segaser, technology assessment; Jim Kolb and Bob Gant (UT graduate student), environmental impact; Gene Hise, real-life model analysis; and John Wilson, computer programs. ORNL also has engaged the services of University of Tennessee and Western Kentucky University faculty members and private consulting firms.

Other federal agencies are involved in analyses which should contribute to the program.

Unit to provide data

The Environmental Protection Agency and HUD have sanitary utility services at two Eskimo villages in Alaska which employ some of the MIUS package ideas. The EPA has trained local residents there to operate the units, which include liquid and solid waste treatment and disposal in addition to sauna baths. Additional mod-

ular units scheduled for operation there are expected to include power generation with heat recovery.

A large housing development being built by HUD in Jersey City, N. J., has a heavily instrumented, on-site total energy system, the performance of which will be monitored continuously by the National Bureau of Standards. It will include electricity, heating, air conditioning and solid waste collection. The building complex consists of some 500 dwelling units, a commercial center and school. The system, although not a total MIUS, should provide useful data on consumer requirements as well as on the system performance and acceptance.

Systems to be compared

The U. S. Army, with HUD, is planning a demonstration operation at Fort Belvoir, Va., serving a new barracks to be

supplied for a few years by conventional systems and then by MIUS. A comparison of the two systems will be made.

NASA, under an agreement with HUD, is operating a scaled-down version of MIUS in its Houston laboratory to use as an aid in subsystem integration. The small operating control and evaluation system is known as MIST, for Modular Integrated Systems Test.

The National Academy of Engineering has an established, independent board from utilities, industry, government, labor and land developers to provide guidance and recommendations to HUD on the MIUS program.

NUCLEAR DIVISION NEWS

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NUCLEAR DIVISION

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Paducah employees may obtain discount tickets for family

The C-Plant Credit Union is offering an additional service free of charge to the employees of the Paducah Plant. Now when the kids finally prevail upon the old man that part of his vacation will be devoted to a trip to Disney World or Opry Land there's no problem. The office force under the direction of Bill Etter will be glad to supply you with reduced price ticket service. In the case of Disney World you are enrolled in Magic Kingdom Club which gives you reduced prices on tickets and also reservation service at the attraction itself. There are several plans available that should fit the needs of the entire family.

Division Retirees



Slusher

Albert B. Slusher took early retirement from the Plant and Equipment Division at ORNL recently.

Slusher, a pipefitter, had been employed at ORNL for over 18 years. He formerly taught school and served as a superintendent in the Tennessee and Kentucky school systems.

Slusher has three children - Linda, James and Michael. All three are teachers.



Corley

Mrs. Millirons



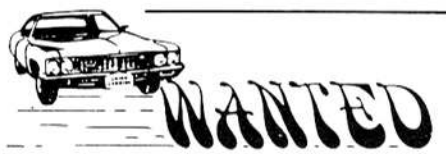
Stansberry

A well-known Oak Ridge Gaseous Diffusion Plant veteran retired last month, and two others will leave at the end of August.

Mary Johnston Millirons elected an early retirement last month, to her 1300 Highland Drive, Knoxville, home. She had spent almost 30 years in the payroll department, most of her Carbide career. She was in the Industrial Relations Division back in the early days of ORGDP.

George G. Corley Sr., mechanical engineer in the Operations Division, joined Union Carbide in 1945. A member of the Oak Ridge City Council, Corley lives at 110 Powell Road, Oak Ridge.

Alonzo K. Stansberry, a design engineer in electrical engineering, also joined Union Carbide in 1945. He retires to his 118 Underwood Road, Oak Ridge, home.



Y-12 PLANT

CAR POOL members from Norwood, Cherokee Ridge area, Knoxville, to any portal, straight day. Eugene Keith, plant phone 3-7615, home Knoxville 947-8573.

Join CAR POOL from Clinton Highway, near Almart, to East Portal, straight day. Vicky Lindsay, plant phone 3-5494, home Knoxville 688-0555.

CAR POOL members from Concord area to West Portal, straight day. J. C. Taylor, plant phone 3-7510, home phone Concord 966-5163.

ORGDP

RIDE from Norwood area, Oliver Springs, to Portal 4 or 7, straight day. Gene Epps, plant phone 3-3124, home phone Oliver Springs 435-7067.

CAR POOL members from Maryville through Lenoir City or Knoxville, 8 to 4 and 4 to 12 shift. Portal 2 or 4. Dennis Raines, plant phone 3-3832, home phone Knoxville 583-4150.

Seven promotions announced at Gaseous Diffusion Plant



Adkins

Cozart



Gaddis

Gaines



Holder

Martin



Spraberry

Seven recent promotions have been announced at the Oak Ridge Gaseous Diffusion Plant. Robert V. Adkins and Gerald L. Martin were named supervisory trainees in the Operations Division; James E. Cozart, of Security and Plant Protection, was promoted to fire and guard lieutenant; Herbert R. Gaddis was named associate development engineer in Separation Systems; Samuel L. Gaines was selected a cascade foreman in Operations; Lucius Holder Jr. was promoted to associate production engineer in Barrier Manufacturing; and James B. Spraberry was named a computer applications programmer in the Computer Sciences Division.

Adkins first joined Union Carbide at the Y-12 Plant in 1951 and was at ORNL from 1964 to 1968, when he transferred to ORGDP.

Adkins, who is a native of Caryville, and his wife, June, live there now on Lake Street. They have two children, twins Bobby and Debbie.

Cozart, who has been at ORGDP for seven years, is a native of Knoxville. Prior to joining Union Carbide he worked as a hospital orderly.

Mrs. Cozart is the former Patricia A. Clark, and they live at 1012 Broad Street, Sweetwater. The couple has four children: Michael, Wanda, Joe and James Jr.

Gaddis, who is a native of Newport, Tenn., received his B.S. degree in mechanical engineering from The University of Tennessee. He first joined Union Carbide at ORNL and was transferred to ORGDP in April, 1973.

He is married to the former Dot Wilder and they live at 7613 Luscombe Drive, Knoxville.

Gaines, who served in the U. S. Navy prior to joining ORGDP 19 years ago, is a native of Harlan County, Ky.

Mrs. Gaines is the former Imogene Braden and they have four children. They live at 128 Marquette Road, Oak Ridge.

Holder worked for the General Electric Company NASA Mississippi Test Facility before joining Union Carbide more than three years ago. He is a Roane County High graduate and attended Los Angeles City College and Roane State College.

Holder, who is a native of Rhea County but grew up in Roane County, is married to the former Linda Burgwald.

The couple has two children, Sondra and Carrie, and they live in the Ponderosa Subdivision, Kingston.

Martin, who first worked at the Y-12 Plant, transferred to ORGDP about 10 months ago.

He is a native of Clinton, and he and his wife, Judy, and two children, Bernie and Rodney, live there now on Route 4.

Spraberry, who is a native of Meridian, Miss., received a B.S. degree in biology from the University of Mississippi and the B.S. degree in computer science from Mississippi State University. He served in the U. S. Army prior to joining Union Carbide in 1973.

Spraberry lives at 185 Waddell Circle, Oak Ridge.

Calendar of EVENTS

TECHNICAL

July 19

ORNL Special Seminar: "New Laser Techniques in Molecular Spectroscopy," William H. Smith, Princeton University Observatory. East Auditorium, Building 4500N, 3 p.m.

July 22

ORNL Summer Energy Series: "Nuclear Fusion as a Power Source," D. Steiner. Central Auditorium, Building 4500N, 3:30 p.m.

July 23

Solar Energy Series: "Photovoltaic Conversion of Sunlight to Electricity," William Cherry, NASA-Goddard Space Flight Center, Greenbelt, Md. Central Auditorium, Building 4500N, 11 a.m.

July 25

Solid State Division Seminar: "AC Magnetic Susceptibility in Irreversible Type II Superconductors," John R. Clem, Ames Laboratory, Iowa. Conference Room, Building 3025, 10 a.m.

July 29

ORNL Summer Energy Series: "Challenges in Quantifying Energy Measurements," J. C. White. Central Auditorium, Building 4500N, 3:30 p.m.

Federal post goes to credit union vet

Lorena Causey Matthews has been appointed deputy administrator of the National Credit Union Administration.

Mrs. Matthews becomes the second highest ranking official in the independent federal agency, the highest ranking woman in the credit union industry, and the highest ranking woman in any Federal financial regulatory agency.

From 1951 to the present, Mrs. Matthews was the treasurer-manager of the Y-12 Employees Federal Credit Union. She is a past president of the Oak Ridge Chapter of Credit Unions and a member of the Tennessee Credit Union League. She is a charter member of the National Association of Federal Credit Unions and has been an active supporter of the association since February, 1968. She recently served as a member of NAFCU's 1974 Nominating Committee.

Prior to her recent appointment as deputy administrator, Mrs. Matthews was the National Credit Union Board member from Region III (Alabama, Canal Zone, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina and Tennessee). She was originally appointed to the NCU Board by President Nixon in 1971. Mrs. Matthews was reappointed to the advisory post in March, 1974 for a six-year term. Her replacement has not been named.

Her husband, C. Lamar Matthews, recently retired from Y-12's product information center.

SOCCER PLAY

Any employee wishing to take part in soccer is invited to come by the Oak Ridge High School athletic field Sunday at 7 p.m. Foreign visitors and summer students are particularly welcome.

Certificates awarded to 53 in ORNL education programs

Ceremonies were held recently to honor the participants of the in-house educational program for weekly salaried employees and the basic education improvement program for hourly salaried employees at ORNL.

Employees receiving certificates in the in-house educational program for successfully completing one or more courses are listed below:

Metals and Ceramics: Lloyd Hall and Ruth Hengstler.

Isotopes: E. E. Pierce.

Instrumentation and Controls: Carl R. Cinnamon, Eugene C. Keith, G. S. Sadowski Sr., Peggy B. Johnson and Sherri B. Wright.

Reactor: Bettye K. Seivers.

Personnel: Frances E. Garrison.

Biology: Donald R. Stallions.

Operations: Luther P. Pugh.

Health Physics: L. Jo Brown, John W. Poston, Beverly Varnadore, Dorothy M. Soard, Inez T. Fann, T. H. J. Burnett, Alma Jean Soard and William D. Carden.

Energy: Bernice H. Fitzgerald, Barbara G. Arrington and Jackie W. Sims.

Inspection Engineering: Patricia Golden.

Analytical Chemistry: Gloria A. Long.

Plant and Equipment: Peggy H. Geld-

meier, W. A. Plunkett, C. E. Smith and Jo F. Ruffner.

Public Relations: Trula S. Howerton.

Director's: Paula L. Renfro and Coralee Zeigler.

Computer Sciences: K. Ann French.

The following employees received high school equivalency certificates under the basic education improvement program:

Operations: Forrest E. Palmer.

Plant and Equipment: Lyman A. Robinson and Leroy West.

Finance and Materials: Charles W. Parks and Charles F. Foust.

Certificates for two or more years of participation in the basic education improvement program were given to the following:

Plant and Equipment: Hal Williams, six years; Garfield Hardin and D. C. Robbins, four years; Richard Jones, Raymond D. Lawson, Jessie M. Lockett and Hugh Binkley, three years; Roy E. Braden, Wade McIntosh, George Reed and Floyd R. Wells, two years.

Operations: Nathan B. Carr and Thelma M. Carter, three years.

These two educational programs are carried out by the personnel development and systems department of the Personnel

COMPANY Service

20

25

30

ORGDP 30 YEARS

Evelyn G. Cole, support services department; William N. Berry, grounds maintenance department; Harry M. Wright, instrument fabrication department; Charles A. Reeves, chemical and technical maintenance department; Samuel V. Haun, maintenance heavy equipment department; Leo J. Davis, U-235 separation department; William L. Oden, barrier manufacturing; William J. Kennedy, chemical operations administration; and Orbit C. Pitts, U-235 separation department.

25 YEARS

Herbert E. Trammell and Martha Anderson.

20 YEARS

James E. Humphreys, Idus T. Littleton and Arthur C. Brown.

PADUCAH

30 YEARS

George O. West, welding pipe fabrication.

20 YEARS

Paul J. Kortz.

GENERAL STAFF

30 YEARS

Marvin W. Mills, May 29, General Accounting Division.

25 YEARS

Irene K. Gentry.

20 YEARS

Josephine D. Simmons and James C. Anderson.

Next Issue

The next issue will be dated August 1. The deadline is July 24.



L. to R: D. Davis, B. Varnadore, T. Burnett, J. Brown, B. Carden, Dot and Jean Soard.



L. to R: F. McKinney, A. Misek, J. Gentry, B. Nestor, F. Garrison and B. Catron.



L. to R: J. White and J. Long.



L. to R: R. Carlsmith, B. Arrington and B. Fitzgerald.



George Joseph



L. to R: T. Freeman, F. Foust, L. West, L. Robinson, F. Palmer, R. Robbins, C. Anthony and B. Catron.



L. to R: back row, L. West, H. Binkley, R. Jones, J. Lockett, L. Robinson and D. Robbins, front row: H. Williams, G. Hardin, R. Larson, R. Braden, G. Reed, F. Wells and H. Seagren.



STANDARD UNIFORMS — Uniforms for members of the plant protection forces throughout the Nuclear Division have been standardized. Personnel in the fire and guard department at Paducah have already received their summer uniforms. From left are guards Stanley C. Taylor and Fred Carter Jr., fire and guard captain Keith Yancey and guard William E. Bradshaw.

Wolfenbarger is named ORNL utilities foreman

James Don Wolfenbarger has been promoted to a utilities foreman in the Plant and Equipment Division at ORNL.

A native of Knoxville, Wolfenbarger graduated from Knoxville High School. He is currently taking a course in heating, air-conditioning and refrigeration from the International Correspondence School.



Wolfenbarger began his service with Carbide at ORGDP in 1954. After working briefly with General Electric Company in Cincinnati, Ohio, he was employed at ORNL. He was a millwright prior to his recent promotion.

Wolfenbarger and his wife, Mary, have three children - Donna, Brad and Melanie Marie. They reside at Broadacres in Powell.

RETIRED ORNLER

Jake R. Parks worked in the Operations Division prior to his retirement in 1967. Mr. Parks is survived by his wife, Mrs. Margaret B. Parks, five daughters, two sons, five sisters, a brother and nine grandchildren. The Parks home is at 501 First Street, Kingston.

Division Deaths

Jack W. Baskette Sr., a job analyst in ORNL's Plant and Equipment, died June 29 at Loudon Memorial Hospital.

Mr. Baskette was born in Monroe County and worked for the Tennessee Valley Authority before joining the ORNL staff in May, 1946.



Mr. Baskette is survived by his wife, Mrs. Ruth C. Baskette, 508 Seventh Avenue, Lenoir City; a son, Jack Baskette Jr.; a brother, Bill Baskette; two sisters, Mrs. Reggie Honey and Faith Baskette; and one granddaughter.

Funeral services were held July 2 in Hawkins Mortuary, Lenoir City, with the Reverends C. Sexton, A. A. Carlton and G. Melton officiating. Interment followed in Lake View Cemetery.

RETIRED PURCHASING VETERAN

Elvin T. Henson, 817 Chateaugay Road, Knoxville, died July 3 in a Knoxville hospital. He was a native of Anderson County and had worked in ORNL before transferring to the Purchasing Division in 1958. He retired in 1971. Surviving are his wife, a son and two grandchildren, and three brothers.

RETIRED ORGDP ELECTRICIAN

John H. "Bud" Stone, who retired almost 11 years ago from ORGDP's electrical department, died recently in the Oak Ridge Hospital. Mr. Stone is survived by his wife, Mrs. Nellie N. Stone, 389 Robertsville Road, Oak Ridge; a sister, a brother and several nieces and nephews.

Philip L. Johnson named ORAU executive director

Philip L. Johnson of the National Science Foundation (NSF) in Washington, D.C., has been elected the new executive director of Oak Ridge Associated Universities. Johnson will succeed William G. Pollard, who has been executive director since the Association was founded in 1946.



Johnson

It is expected that Johnson will assume his new duties on August 18. He is currently the division director of environmental systems and resources, which carries out the NSF's Research Applied to National Needs (RANN) program.

Johnson was born in Oneonta, N.Y. He received a bachelor's degree in agriculture and a master's degree in natural resources from Purdue University. He earned his doctorate in plant ecology from Purdue University.

Johnson has taught at Dartmouth College, the University of Georgia and the University of Wyoming. He also worked as an agricultural economist for the Department of Agriculture and as a botanist for the U. S. Forest Service.

He has a long list of scientific publications to his credit. His professional interest have been in ecosystem analysis, land use planning, physiological ecology, arctic-alpine ecology and remote sensing applications.

PATENT

To Zane L. Ardary and Carl D. Reynolds, both of Y-12, and Virgil B. Campbell, ORGDP, for "Carbonaceous Coating for Carbon Foam."

Toll enrichment sales \$42 million

More than \$46 million in toll enrichment sales were recorded at the Oak Ridge Gaseous Diffusion Plant during the second quarter of 1974, bringing sales for the year to approximately \$75 million. This represents a significant increase over the first half of 1973, when toll enrichment sales totaled \$45 million.

During the second quarter of 1974, more than 795,000 pounds of enriched uranium were shipped for use in nuclear reactors in California, Illinois, Michigan and North Carolina, as well as in Belgium, Japan, Korea, Sweden and West Germany.

Under the Toll Enrichment Program, privately-licensed owners bring their uranium to a gaseous diffusion plant for enriching on a toll basis. Customers are charged for the services required to separate from natural uranium the desired percentage of the uranium-235 isotope, usually between two and three percent.

MEETING OF RETIRED PERSONS

The Oak Ridge Area Chapter of the American Association of Retired Persons will hold an evening session of its regular monthly meeting August 22 at 7 p.m. in Meeting Room A of the Oak Ridge Civic Center.

All interested persons 55 years of age or older are invited to attend.



TOLL ENRICHMENT PROCESS — Cylinders of uranium feed material are prepared for heating, as one step in the toll enrichment process. Toll enrichment began January 1, 1969, and last year the billion dollar mark in enrichment services was passed.

RECREATIONOTES



PADUCAH SWIMMING

The Noble Park swimming pool in Paducah is now available free of charge to Paducah employees and their families from 9 a.m. to 12 noon, each Saturday, through September 7. Lifeguards, pool management and basket service are provided. Pool safety rules must be observed and instructions of lifeguards must be obeyed.

Y-12 FISHING RODEO

Y-12 announced winners in the first half of the year's fishing rodeo recently, awarding prizes for 11 species. The prizes may be picked up at Building 9711-5.

LARGEMOUTH BASS

1. Mike A. Estep
2. Elmer Green
3. C. E. Bowling Jr.
4. Larry Martin

SMALLMOUTH BASS

1. J. B. Wade
2. R. D. Carter
3. J. C. Parton
4. Elbert Scott

STRIPED BASS

1. Golda Caylor, Mrs. G. H.
2. T. D. Newman
3. J. M. Whatley

BREAM

1. T. R. Whitus Jr.
2. R. E. Belcher
3. G. D. Watson
4. Morine Hudgens, Mrs. E. H.

CRAPPIE

1. Jack Wade, son of J. B.
2. Monte McDonald, husband of L.S.
3. H. T. Potter
4. Patricia DeRoos, Mrs. Larry

ROCK BASS, HYBRID

1. Tom Kitts
2. Arnold Craft
3. A. L. Monday
4. W. K. Mink

ROUGH FISH

1. H. A. Price
2. Joe Jackson

MUSKIE

1. W. R. Jago

SAUGER

1. J. L. Harvest Jr.
2. A. G. Steele Jr.
3. Kevin Jago, son of W.R.
4. Milton Carolton

TROUT

1. N. R. Pinland
2. K. D. Bolling
3. Toby Steele, son of A.G.
4. J. D. Roesler

WALLEYED PIKE

1. Allen K. Crisp
2. Larry DeRoos
3. G. J. Caylor
4. Mary Denman, Mrs. L. M.

ORGDP GOLF TOURNAMENT

Alvin Boatwright took the K-25 Whittle Springs golf tournament with a one-under-par 71. David Lannom parred the course to take second place.

Marvin Mills' 79 was handicap low, and L. C. Patrick scored an 82.

Frank Copeland tallied 14 pars; E. T. Strunk 12, along with R. K. Johnson.

Division two went to Glen Brooks with an even 80. He was followed by G. W. Lay, who scored an 84 tying with W. L. Goodwin.

Carl Richeson scored an 81 for handicap lows; and W. C. Meyers came in with a 91 card.

M. B. Hartman scored eight pars.

ORGDP FISHING RODEO

Fishing rodeo winners at the Oak Ridge Gaseous Diffusion Plant may pick up their awards at Building K-1001, Room C-136.

LARGEMOUTH BASS

1. Paul M. Seavers
2. Roger Childs
3. Edward H. Jaynes
4. B. A. Guy

SMALLMOUTH BASS

1. N. D. Rathbone
2. James D. Herrin
3. Robert F. Hyland
4. Harold D. Adkins

STRIPED BASS

1. W. M. Cox

BREAM

1. Gary Walters, son of H. E.
2. J. A. Walker
3. J. H. Fletcher
4. W. H. Adams

CRAPPIE

1. K. S. Cisson, Mrs. Larry
2. C. W. Castle
3. H. E. Walters
4. P. E. Carter

ROCK, HYBRID

1. A. D. Reeder
2. Harry G. Conner
3. Vernon Long, son of D. B.
4. Ira C. Marshall

ROUGH FISH

1. John H. Woody
2. Bobby J. Ford
3. Son of J. L. Howard

SAUGER

1. James R. Payne
2. J. H. Moore Jr.
3. Marjorie Hart, Mrs. J. D.
4. Danny W. Crisp

TROUT

1. J. A. May

WALLEYED PIKE

1. Noble L. Mantooth
2. R. G. Vornehm
3. Mrs. H. E. Walters
4. Madelyn Rathbone, Mrs. N.D.

Y-12 GOLF TOURNAMENT

Bill Butturini's 75 was low card at Y-12's tilt at Dead Horse Lake last month. Charlie Baxter followed in second place 76.

J. Francis and W. Rutherford took handicap honors in the first division, with scores of 77 and 78 respectively.

John Sewell parred 10 holes; D. Littleton, Bob Angel, J. Baker and Jim Vance, all counted nine.

Mickey Woody took the second flight with a 74. Ray Riggs followed with an 80.

Ray Whitehorn scored an 80 for handicap lows and W. Watkins scored an 83.

C. Blankenship tallied with seven pars. Flight three went to Ed Ball, with an 86, followed by John Towle with an 88.

L. E. Duke and H. Huston took handicap lows with 88 and 89.

O. C. Willard warped out six pars.

J SHIFT GOLF LEAGUE

Smith-Collins lead the field with 12 points won; no losses. Baster and Sewell came in second with an 8, 4 record.

SOUTH HILLS GOLF LEAGUE

The Cozart-Graham team leads the South Hills Golf League by three points ahead of the Wright-Bryant, Stafford-Madewell duos.

SOFTBALL LEAGUE

The Snakes stand tall in both softball leagues, with 14 wins, no losses. The Rats, in the Nuclear League, dropped one recently.

ATOMIC LEAGUE

Team	W	L
Snakes	14	0
Ecology	10	5
Gashouse Gang	9	5
Red Barons	8	6
Supersonics	9	7
Streakers	6	6
Y-12 Sox no. 2	2	10

NUCLEAR LEAGUE

Team	W	L
Rats	14	1
Computes	12	2
Raiders III	12	3
Over-the-hill Gang	11	4
The Losers	5	5
Bombers	6	7
Bio-Rejects	6	7
Avengers	6	7
AI's Pals	5	7
Hornets	5	8
Artie's Army	3	11

ORNLF GOLF TOURNAMENT

Cedar Hills golf tournament for ORNLers went to D. Collins who fired an even par 72. T. Bettler was second best with a 74.

Handicap lows went to P. Pair, 74; and F. Hammerling, 78. C. Coley and J. Hudson scored 15 pars.

Division two went to H. Bryson, scoring a 78, and E. Bordes, 79. G. Jones and R. Stone scored 82 and 80 to take handicap lows.

Most pars were divided among F. Jones, T. Krees, D. Lee and J. Wiggins, all with seven.

V. Miracle's 84 was low in flight three, as F. Wetzel scored 85. Handicap lows went to N. Lee, 93; and R. Tucker Sr., with 86.

F. Chattin picked up seven pars.

DEAD HORSE GOLF LEAGUE

George-Crowder won the first half of the Dead Horse Lake League, beating out Hickey-Hudson by three points. The winning combo posted a 44 point win, 10 point loss track record.

CARBIDE FAMILY BOWLING

Carl Butcher and Mary Goldberg led bowlers recently in the All Carbide Family League, rolling each Thursday night in Oak Ridge. The Oops team, stands five and one half points out, ahead of the Teardrops.

ORNLF FISHING RODEO

Fishermen at the Oak Ridge National Laboratory produced many fine specimens in the semi-annual contest. Prizes may be picked up in Room-K-113, 4500 N. Building.

LARGEMOUTH BASS

1. G. E. Keller
2. Gladys Arthur
3. Paul Crawford
4. Eddie G. Bailiff

SMALLMOUTH BASS

1. D. R. Davis
2. Carl L. Fox
3. Kathleen Howard, Mrs. W. L.

STRIPED BASS

1. R. G. Shooster
2. R. E. Hand Jr.

BREAM

1. George Guerrant
2. Micheline Jones, Mrs. R. H.
3. J. P. Heiskell
4. E. B. Cagle

CRAPPIE

1. Raymond Shooster, son of R.G.
2. James L. Moore
3. T. L. Miller
4. Stephen King, son of Roy T.

ROCK BASS, HYBRID

1. Max Brewer
2. R. T. Santoro
3. Donald E. Stooksbury
4. Ralph L. Clark

ROUGH FISH

1. B. G. Foutz
2. Danny Plaster
3. A. D. Ryon
4. C. C. Hurtt

SAUGER

1. P. H. Hayes
2. Georgette Shooster, Mrs. R. G.
3. J. E. Blevins

TROUT

1. Carl C. Koch
2. Ray M. Evans
3. C. W. Bandy
4. J. N. Smith

WALLEYED PIKE

1. George A. West
2. Janice Santoro, Mrs. R.T.
3. R. N. Hatmaker
4. J. H. Bridges

MELTON HILL GOLF LEAGUE

Joe Sherrod fired a 37 recently on the Melton Hill Golf course to give his team with partner Wyrick a lead in the league, two points ahead of the Mundt-Bailey team.

THE LAST WORD

Trouble with mood music is, nobody ever agrees what mood we're in.

Tee-Off Time Application for July 27

(Check Appropriate Plant)

- ☐ ORGDP - CEDAR HILLS
☐ Y-12 - SOUTHWEST POINT
☐ ORNL - WHITTLE SPRINGS

LEADER

Phone Bldg.

Time Preferred

COMPLETE AND RETURN TO YOUR RECREATION OFFICE

Entries must be received prior to drawing on July 24, 2 p.m.

ORGDP—Building K1001—C-Wing—MS 122

ORNL/Y-12—Building 9711-5

Tee-off times for all tournaments will be drawn on Wednesdays prior to each Saturday's tournament. Golfers are responsible for reserving their own carts by contacting the pro shop following drawing for tee-off times.

The Medicine Chest

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning their health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 20, or call the news editor in your plant, and give him your question on the telephone.)

By T. A. Lincoln, M.D.

QUESTION: "There are many articles by medical doctors that indicate an EKG is much more meaningful if taken while a person is under physical stress. Why are Carbide employees given only a 'resting' EKG?"

ANSWER: It is true that an exercise electrocardiogram is more sensitive in detecting unsuspected coronary heart disease. The reason, of course, is that the EKG abnormalities are due to a lack of



oxygen being delivered to the heart muscle. In most cases this is the result of a partial obstruction of a branch of a coronary artery by the fatty deposits of atherosclerosis. By exercising the patient and making the heart beat faster,

the demand for oxygen of the heart muscle is greatly increased. When that demand cannot be met by increased blood flow, the muscle's electrical conductivity is temporarily changed, causing a depression of the ST wave and other abnormalities on the EKG.

Unfortunately, routine exercise testing done by having the patient climb back and forth over steps, the Master's two-step test, walking on a moving treadmill or pedaling a bicycle ergometer can be hazardous. It therefore has to be done with care with all equipment and staff nearby to handle any sudden emergencies. Immediately before an exercise EKG can be performed, a resting EKG has to be done and interpreted. Several deaths have been reported on individuals tested who apparently already had recently had either a silent heart attack or evidence of serious coronary disease. You can see that exercise testing is therefore time consuming and must be done with care. Actually, the risk is exceedingly small when exercise testing is done on patients who have completely recovered from a heart attack, but the consequences may be extreme so the precautions also have to be strict. ORNL has all the equipment and did a number of tests on several young people two years ago, making use of a graduate assistant from UT. The staff requirements are so great that frequent testing is just not practical at this time. The time may come, hopefully soon, when exercise testing will look good even after a strict cost benefit analysis and then it may be used more frequently.

QUESTION: "What do you think of low dosage use of diethylstilbesterol after hysterectomy and ovariectomy, with regard to carcinogenesis? After natural menopause?"

ANSWER: The principal concern about diethylstilbesterol (DES) is the statistical association between DES taken during a pregnancy to prevent a spontaneous abortion and the occurrence many years later of cancer of the vagina in daughters. The appearance of the cancer occurred when the daughters were from 8 to 25 years of age. For this reason, DES should never be used during a pregnancy. DES is also used as a "morning-after" contraceptive. It is effective in preventing pregnancy after exposure but it is associated with a high percentage of unpleasant side effects. The dose has to be high in order to prevent conception and consequently nausea and vomiting occur frequently. Its use has not been associated with cancer. In general, DES can be used as replacement therapy for women who have had their ovaries removed, thereby causing a "surgical menopause", or for those reaching a natural menopause. In general, perhaps because of the reputation DES got when the cancer problem in daughters was uncovered, it is not used as much now for menopausal women. There is still much disagreement on the value or need for estrogen replacement therapy after menopause, but it has not yet been shown to cause cancer. Most women who get the estrogen support during the menopause are grateful for the help.

QUESTION: "What is a Bartholin cyst? Is it caused from having a venereal disease?"

ANSWER: The Bartholin glands are vulvo-vaginal glands which provide sexual lubrication. They occasionally get plugged and when this occurs a cyst, often as big as a marble, occurs. The retained secretions in the cyst may become infected, causing an abscess. Gonorrhea is a common cause of such cysts but they frequently occur in women who have never had any venereal disease, so there should be no unnecessary guilt feelings. The cyst can be removed surgically quite easily and recovery is usually uneventful.

BIMONTHLY COLLOQUIUM

The next ORNL Bimonthly Colloquium will be held July 30 at 7:30 p.m. at the Oak Ridge Playhouse.

Mike Guerin, Analytical Chemistry Division, will present a talk titled, "Cigarette Smoke, Smoking and Smokers."

The usual format for the discussion period has been modified for the July Colloquium. Nuclear Division President Roger Hibbs will share the podium with Laboratory Director Herman Postma. Hibbs will respond to questions related to Carbide policies and programs and Postma will continue to field those questions directed toward ORNL. Barbara Lyon will serve as moderator.

Admission will be by badge, only.

Yale graduate uses Russian translating machine at ORNL



RUSSIAN TRANSLATION — Emmy Zuckerman, a summer employee at ORNL, works with the Russian-English Machine Translation Program. Where necessary, she takes words and sentences and in the translations and puts them into better or more exact English.

By Lynne G. Boggs

Emmy Zuckerman received the B.A. degree summa cum laude with distinction from Yale University in June and headed south to her hometown, Knoxville, for the summer. Emmy is the daughter of Dr. and Mrs. Eugene Zuckerman, 7140 Wellington Drive.

Like many students home for the summer, Emmy was interested in working. However, she felt there might be difficulty in finding something suited to her background. And with good reason. Her specialty is anything but commonplace - Russian and East European studies. The Russian-English Machine Translation Program at Oak Ridge National Laboratory proved to be just what she was looking for.

Three-person team

Emmy is part of a three-person team working with the program at ORNL, one of the few places in the world using this translation system. The computer program for the system was first developed at George Washington University in Washington, D.C. With the University's permission, ORNL has been expanding the program for its own use during the past five years.

Speed is the main advantage of machine translation. For example, a book that would take six months to translate by hand will only take about two weeks using the machine.

Technique experimental

The technique is still experimental and sometimes the translation, although accurate, does not utilize the optimum choice of English words. Shades of meaning are sometimes altered. This is where Emmy comes in. Where necessary, she takes words and sentences in the translations and puts them into better or more exact English. She also writes instructions to the computer on how to handle certain problems in the future.

All of this requires a thorough knowledge of Russian, and Emmy has the ideal background. For one thing, she has facility with languages in general. She chose Russian as a major because she wanted to

learn another language in addition to the French, Latin and German she already knew. She would like to start on Chinese if she gets the chance.

Second class at Yale

Emmy was one of 1,100 women at Yale out of a total enrollment of 4,800 students. Hers was the second class of women to be admitted to the University, and she is the first woman from East Tennessee to spend four years there.

Emmy thoroughly enjoyed her experience at Yale. "There was so much personal freedom," she said, "and I was impressed by the way everything was done. Learning on a college level was so much better than anything I had experienced before." She said that she didn't have any trouble blending into a university that had previously, and quite recently at that, been famous as an all-male bastion of higher education.

Will enter Harvard

This fall Emmy will enter Harvard Law School. Women accepted into this program comprise about 12 per cent of all applicants.

After graduation, Emmy would like to work for one of the many business firms in the United States that do work on an international level, possibly involving maritime law or international business deals.

WANTED

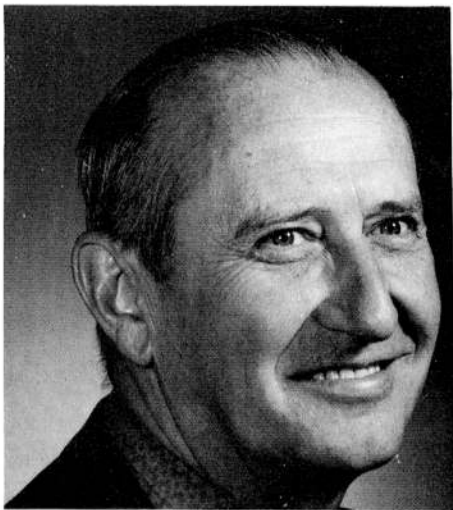


ORNL

JOIN CAR POOL from Woodland area, Oak Ridge, to either portal, 8 or 8:15 a.m. shift. Richard Kerchner, plant phone 3-6960.

RIDE or JOIN CAR POOL from Karns area to West Portal, 8 a.m. shift. Marie Wilson, plant phone 3-6844, home phone 947-6452.

Corbin receives two honors at ASTM meet



Lawrence T. Corbin

The American Society for Testing and Materials has announced that Lawrence T. Corbin, assistant director of ORNL's Analytical Chemistry Division, has been granted its Award of Merit and named a Fellow of ASTM. The presentation was made on July 19 during a meeting of ASTM Committee C-26 on Fuel, Control, and Moderator Materials for Nuclear Reactor Applications.

The ASTM Award of Merit is granted to individuals for distinguished service to the cause of voluntary standardization. Corbin was cited for "outstanding leadership in Committee C-26 through the formation of a progressive organization responsive to the needs of the nuclear industry, and for rapidity in developing and publishing comprehensive methods of test of industrial nuclear materials."

Corbin, a native of Madisonville, Ky., received the bachelor's degree in chemistry from the University of Kentucky. He worked with Continental Motors and served in the U. S. Navy prior to coming to work at ORNL in 1946.

In addition to ASTM, Corbin is a member of the American Association for Advancement of Science, American Chemical Society and the American Nuclear Society. He was listed in Who's Who in American Education Leaders in American Science in 1968. Corbin has authored a number of papers and articles in the field of analytical chemistry.



To John M. Napier, Earl W. Stooksburg, both of Y-12; and Richard A. Strehlow and Robert L. Hamner, ORNL, for "Composition for Preparing Graphite Bodies."

To James R. Weir and William R. Martin, ORNL, for "Method for Inducing Resistance to Embrittlement by Neutron Irradiation and Products Formed Thereby."

To Charles R. Schmitt and Samuel T. Benton, both of Y-12, for "Method of Preparing a Syntactic Carbon Foam."

SOUTHWEST POINT GOLF LEAGUE

The Copeland-Boatwright team won the first half of the Southwest Point Golf League down on the lake, edging out the Phillips-Winters pair.

41 young people begin summer jobs

Forty-one young people from 12 communities are working this summer under the Youth Opportunity Program at the Oak Ridge facilities operated by Union Carbide Corporation for the U. S. Atomic Energy Commission.

The Youth Opportunity Program is for persons between the ages of 18 and 21 who are either high school graduates, or students planning to continue their education either in college, business, vocational or training schools.

Nineteen of the participants are working at the Oak Ridge Gaseous Diffusion Plant, 14 at the Oak Ridge National Laboratory, and eight at the Oak Ridge Y-12 Plant.

Home communities of the participants are as follows: Knoxville, nine; Clinton, Oliver Springs and Sweetwater, five each; Powell, four; Kingston and Oak Ridge, three each; Alcoa and Harriman, two each; and Loudon, Cherokee, N.C., and Abbeyville, Ga., one each.

This is the ninth year that Union Carbide's Nuclear Division has participated in the Youth Opportunity Program. Earlier this year Union Carbide's Central Employment staff worked with guidance counselors at a large number of schools to find suitable candidates for the program.

COMPANY Service

20 25 30

Y-12 PLANT 30 YEARS

Ted S. Higgins, 9215 rolling mill; James C. Parker, casting department; James H. Patrick, dispatching; James W. Jackson, special services; F. C. Lowry, dispatching; Gilbert E. Berney, building, grounds and maintenance shops; Agnes F. Johnson, production assay; John R. Car-riger, electrical and electronics department; William L. Beeler, area 5 maintenance; and Sallie F. Durham, building services department.

25 YEARS

William E. Belvin Jr.

20 YEARS

Roger W. Cloyd, Charles T. Eldridge, John K. West, Carl Parks, John S. Hirst, Johnny D. Moore, Loyd S. Stansberry, Walter V. Kanipe, Don D. Forrester, Carl S. McMurray Jr., and Alfred P. Brown.

20 YEARS

Murray L. Kinamon, Vaughn W. Reece, Hollis L. Ashburn, John N. Turpin, Tom Asbury, Roger D. Winkels, C. P. Tudor, Kenneth E. Russell, Glenn R. Easter, Lawrence V. Mowell, William J. Yaggi, Thomas E. Walsh Jr., Robert E. Thornton, Chester Yeary, Lynn F. Ellis, Edwin R. McCulloch, and Howard J. Lee.

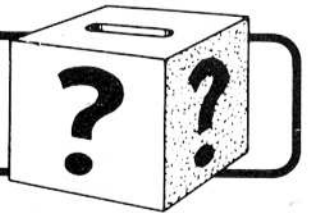
Calendar of EVENTS

TECHNICAL

July 30

Solar Energy Series: "Wind-Energy Conversion and Storage," Prof. William L. Hughes, Oklahoma State University. Central Auditorium, Building 4500N, 11 a.m.

QUESTION BOX



(Continued from page 1)

percent since 1970, and the goal of this segment of the Corporation is to achieve another 15 percent reduction by 1978.

The rising costs and dwindling energy resources will, over a period of time, force most businesses (and individuals as well) to be alert for energy saving actions.

QUESTION: Why has Union Carbide not initiated a program to assist the handicapped employee to improve his skills?

ANSWER: We recognize that the handicapped can be valued employees when their skills meet the requirements of a position.

There are many ways a person can be handicapped. For example, a person may lack education or proper training to perform certain jobs. The TAT program at the Y-12 Plant helps overcome those handicaps. In addition, the Company's Educational Assistance Program and the University Study Program are designed to assist all employees, including the handicapped, to improve and broaden their job skills.

If, in your question, you are referring to the physically handicapped, UCC-ND screens such applicants for positions which they are capable of handling. The Company also makes every effort to reassign an active employee who becomes physically handicapped into another position which he can perform.

We do not provide specialized training for the handicapped. Public or private institutions have this responsibility.

QUESTION: I am aware of what ORNL is doing about the attitude survey... forming committees, studying the various problems, etc. What is Y-12 doing, if anything?

ANSWER: The Y-12 Plant held a series of meetings with all salaried employees to report survey results and is participating, through appointed repre-

sentatives, on Nuclear Division task forces exploring several division-wide problem areas. In addition, the respective Y-12 divisions are continuing to work on deficiencies identified through assigned task forces, employee committees, and/or supervisory action. In some divisions, employee meetings have been held in the interest of communication on administrative matters, and similar meetings will continue. Top level managers have completed an extensive Corporate Management System training program, and plans are being formulated for similar training and implementation with lower levels of supervision. A special human relations supervisory training program is planned to be under way in the near future.

QUESTION: Many people in Y-12 work rotating shifts, and many also work straight shift work. We were wondering if it would be possible to have a doctor at the dispensary during these off-hours?

ANSWER: Nurses are scheduled on all shifts at Y-12, that is, 21 shifts per week. Due to the small number of employees involved, justification for such coverage is marginal on some shifts. We can not justify having doctors assigned to other than day shifts; however, one of the UCC-ND physicians is always on call at night and on weekends, and he is consulted by the nurses when necessary.

WANTED-WANTED-WANTED

ORNL

RIDERS wanted from Solway Community to East Portal, 8 or 8:15 a.m. shift. Bill Terry, plant phone 3-6775 or home phone 482-3147.

CAR POOL members from Waddell, West Outer or Pennsylvania Avenue areas, Oak Ridge, to East or North Portal, 8:15 a.m. shift. Tom Burnett, plant phone 3-6939, home phone 483-1975; or Dick Reed, 3-1801 or 483-3458.



UNION CARBIDE CORPORATION

NUCLEAR DIVISION

P. O. BOX Y, OAK RIDGE, TENNESSEE 37830

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